User manual

COR Optical repeater for singlemode fibre

COR series optical repeaters are meant for systems requiring extreme fibre transmission distances. They provide an additional 20 dB link budget for any ITU-T compliant CWDM wavelength or standard 1310 nm used in a CFO system.

Contents

COR - optical repeater

Configurable bi-directional optical repeater to cover extreme transmission distances over singlemode optical fibre.

Welcome, and thank you for purchasing Teleste's CFO Products.

General

COR repeaters are part of the extensive CFO OP-X platform that complies to ITU G.694.2 CWDM grid. Also basic 1310 nm operation is supported. These non-regenerative repeaters provide a cost effective way to cover extreme transmission distances over optical fibre. Depending on system up to two or three repeater units can be connected in series to make a line in which each leg have a maximum of 20 dB link budget available for bi-directional operation.

The COR repeaters are configurable products meaning that the operational wavelenght can be selected upon customer specification. A typical repeater configuration supports fully bi-directional operation but has also option to be defined for uni-directional operation as well.

The COR repeaters are optically compatible with all earlier generation digital CFO video modems (SMF 1310 nm and CWDM models).
The COR series fits into all standard CFO installation systems allowing both rack or standalone adaptor type operation. The COR series is temperature hardened.

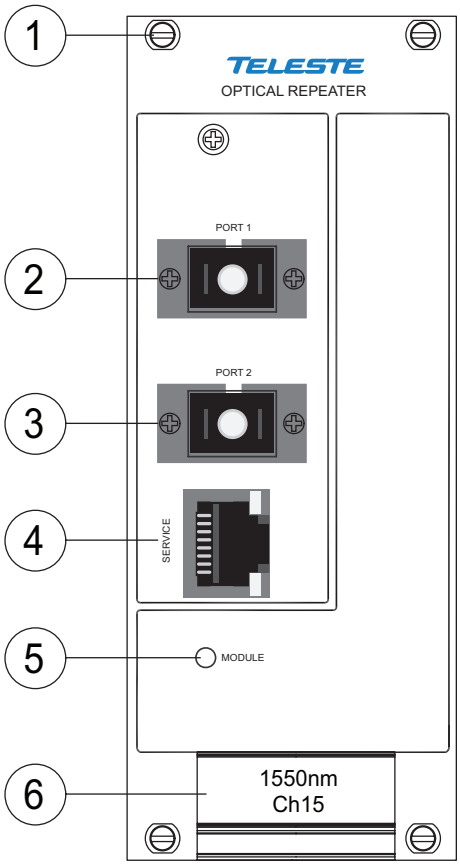
As with all CFO platform products these specific models do meet all typical EMC as well as other environmental and manufacturing related requirements.

Features

- Bi-directional operation in same wavelength
- Complies to ITU G.694.2 CWDM grid
- High performance
- Same units for rack mount or stand-alone
- Mechanically compact and ruggedised
- International EMC and environmental conformance
- Compatible with all CFO installation systems
- Optically compatible with older generation CFO video modems (e.g. CFOx41 and CVM series)

COR - optical repeater front panel

CAUTION:
THESE OPTICAL UNITS USES CLASS 1M LASER DIODE.
DO NOT STARE INTO BEAM OR VIEW DIRECTLY WITH OPTICAL INSTRUMENTS. APPLICABLE STANDARD IEC60825-1: 2001



COR Optical Repeater

1) Locking screw (4 pcs)
2) Port 1, optical forward input / return output (SC/APC 8°)
3) Port 2, optical return input / forward output (SC/APC 8°)
4) Service connector (RJ-45 female)
5) Module indicator led
6) Handle (with wavelenght and channel information)

See further information on dedicated sections.

General

The **COR** units are configurable bi-directional optical repeaters for CFO OP-X platform that complies to ITU G.694.2 CWDM grid.

Frame installation

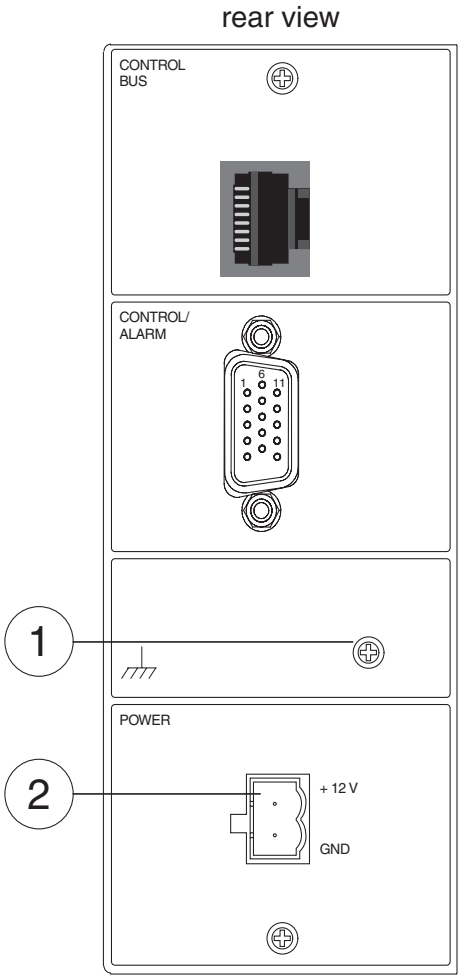
The **COR** module is to be pushed along the guide rails into the installation frame (e.g. **CSR216** or **316** series) and secured with the four locking screws. The unit can be freely positioned in any slot in the frame. The empty positions in the frame should be blanked off with cover plates. The supply voltage is to be provided by a **CPS384** or **CPS390** power supply unit which are installed back of frame.

Module indicator led

The **COR** contains a MODULE indicator which informs generic status of the unit.

Colour	Status
Green	Normal operation
Red	Supply voltage is not in the permitted range or a hardware failure

MODULE indicator operation.



CMA021 module adapter

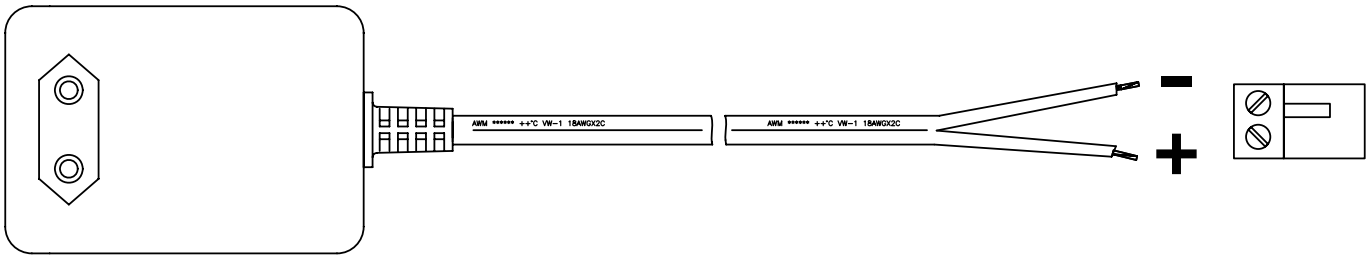
1) Grounding connector
2) Supply voltage connector

Other interfaces are not in use.

Stand-alone installation

The unit can be installed for stand-alone use by using a **CMA021** module adapter (installation for 10HP wide CFO series units).
The module should be mounted to a vertical surface. The +12 VDC supply voltage is supplied by the means of a separate mains adapter with a regulated output, (e.g. **CPS231**). Please refer to separate documention for module adapters and mains adapters.

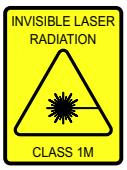
The permitted supply voltage range is 10.5...14 VDC. The current consumption is max. 100 mA (+12V DC). The permitted operational tempera-



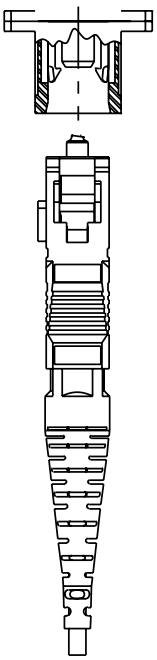
CPS231 power supply with connector.

ITU Ch	Wavelength
11	1470 nm
12	1490 nm
13	1510 nm
14	1530 nm
15	1550 nm
16	1570 nm
17	1590 nm
18	1610 nm

Available ITU G.694.2 wavelength channels for COR units.



front view



The optical connector type is **SC/APC 8°.**

Fibre connection

COR optical repeaters are designed to operate on ITU specified CWDM optical channels. Configurable properties are that wavelenght for forward direction and return direction can be choosen separately. However, in a typical CFO OP-X system channel is the same to both directions. The optical connector type is **SC/APC 8°**.

When installing the fibre optic cable, do not exceed the minimum bending radius when connecting cable to the system.

For correct optical operation ensure that:

* Protect opened connectors always with dustcaps.
* Use only 8° angle polished SC/APC connectors, other connector types will damage the interface.
* Clean all connectors before mating by using metyl or isopropyl alcohol and dry connectors by compressed air.

Optical connection meets class 1M laser safety requirements of IEC 60825-1: 2001 and US department of health services 21 CFR 1040.10 and 1040.11 (1990) when operated within the specified temperature, power supply and duty cycle ranges.

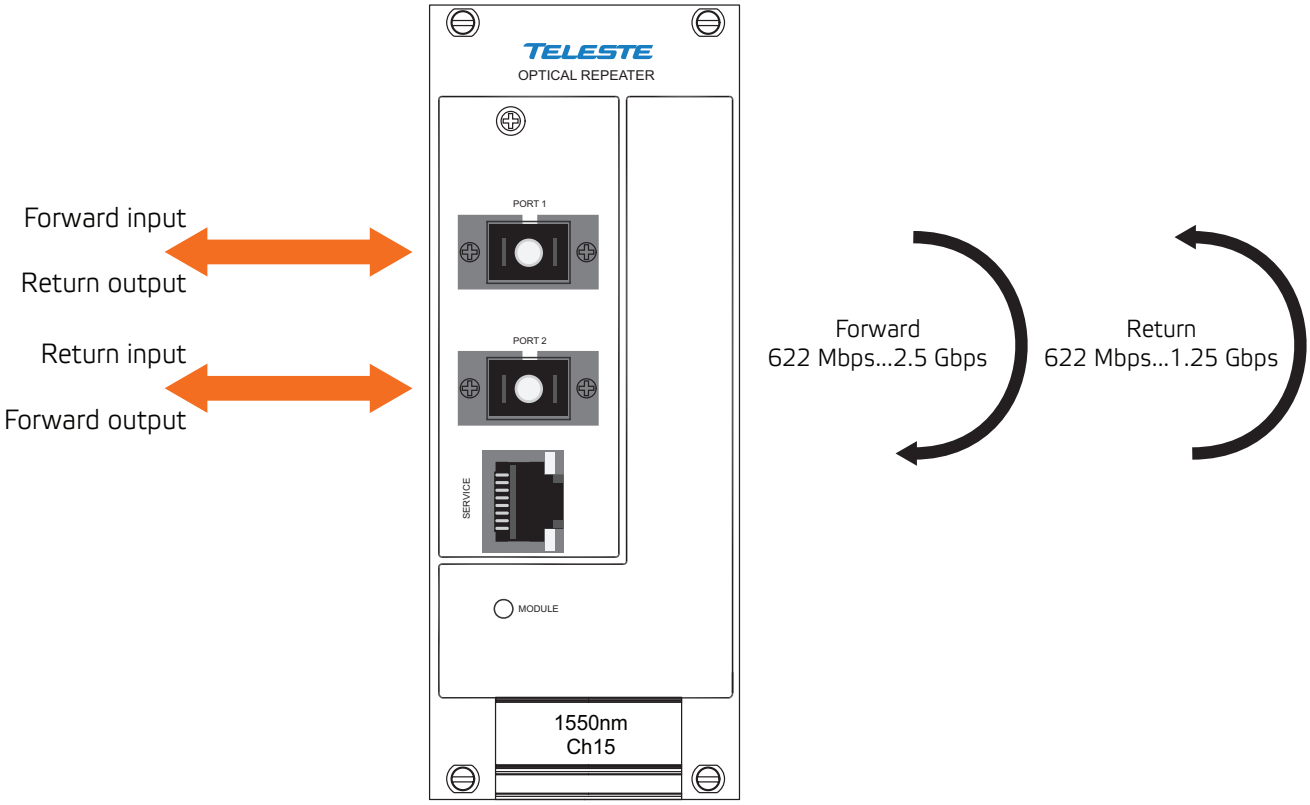
Optical signal levels

The optical output level is typically -1 dBm to both directions. However the allowed optical input levels are different and are for forward input direction -5...21 dBm and for return input direction 0 dBm...-21 dBm.

When testing the units it is advised in addition to a short fibre patch cable to use always an optical attenuator to guarantee system safe operation. In most cases a recommended attenuator value is at least 5 dB. Please check also that a high quality doped-fibre attenuators are used (air-gap attenuators may cause difficulties on link association due to a poor reflection loss performance).

Function

Optical signal routing inside the optical repeater module.



Technical specifications

Optical, forward path	
Received wavelenght	1290...1330 and 1470...1610 nm
Transmitted wavelenght	* configurable, CWDM ch or 1310 nm
Input level range	-5 dBm...-21 dBm
Output power	-1 dBm
Forward path link speed	622 Mbps to 2.0 Gbps
Optical connector type	SC/APC 8°

Optical, return path	
Received wavelenght	1290...1330 and 1470...1610 nm
Transmitted wavelenght	* configurable, CWDM ch or 1310 nm
Input level range	0 dBm...-21 dBm
Output power	-1 dBm
Return path link speed	622 Mbps to 1.25 Gbps
Optical connector type	SC/APC 8°

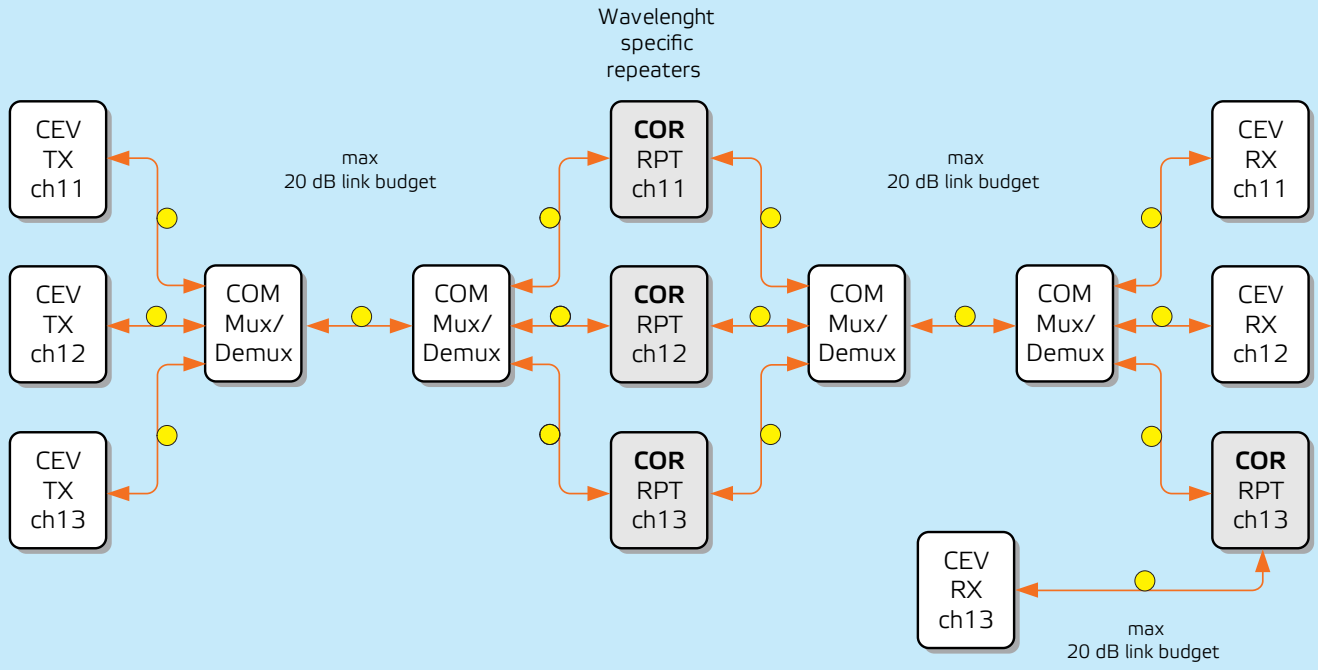
General		
Supply voltage	12 V / 100 mA	
Power consumption (max)	1200 mW	
Dimensions (H x W x D)	3U • 10HP • 190 mm	without CMA
Weight	0.5 kg	
Operating temperature	-34...+74 °C	
Storage temperature	-40...+85 °C	
Humidity	0...95 %	non condensing
EMC compatibility	EN61000-6-3, EN50130-4, CE	

Notes

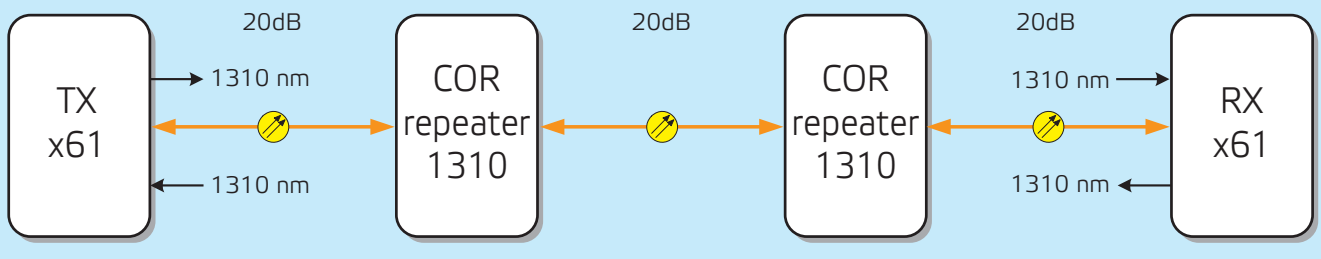
* Factory set upon customer configuration, CWDM channels 11...18 or basic 1310 nm
Class 1M Laser Product
Typical values unless otherwise stated

Application example

Multiwavelenght CWDM system



Single wavelenght point-to-point system



Copyright acknowledgements

Teleste Corporation
Video Networks
P.O. Box 323
FIN-20101 Turku
FINLAND
www.teleste.com

WEEE directive

Directive 2002/96/EC of the European Parliament and of the Council on waste electrical and electronic equipment (WEEE) obliges that producers appropriately mark electrical and electronic equipment with the symbol indicating separate collection. This obligation applies to the equipment put on the market in EU after 13 August 2005.

Teleste devices which belong to the scope of the directive have been marked with the separate collection symbol shown below. The marking is according to the standard EN 50419. The symbol indicates that the device has to be collected and treated separately from unsorted municipal waste.

User manual revision history note:
The latest version is always available in pdf-format on our web site:
www.teleste.com

Notes

TELESTE

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